

e) receiving, at a local expander, an original isochronous data packet from a host controller;

f) forwarding said original isochronous data packet from said local expander to a remote expander over a signal distribution system;

5 g) receiving, at a remote expander, said forwarded original isochronous data packet; and

h) delivering said forwarded original isochronous data packet to at least one peripheral device.

10 6. A method as claimed in Claim 4 additionally comprising the following steps after step (b) of Claim 4 namely:

i. Determining whether said local expander already possesses said requested isochronous data;

ii. Generating a synthetic data packet if no such requested isochronous data is present; and

15 iii. Delivering said synthetic isochronous data to said host controller.

7. A method as claimed in Claim 4 additionally comprising the following step after step (c) of Claim 4, namely:

i) Storing the address of the [requested] peripheral device at said remote expander unit; and further comprising the following steps after step (d) of Claim 4, namely:

20 i) Retrieving the address of said [requested] peripheral device at said remote expander unit; and

ii) Adding said retrieved address to said requested isochronous data.

8. A method as claimed in Claim 4 wherein vestigial packets are removed from the system, said method comprising:

25 i) Detecting when a new frame has begun;

ii) Examining the properties of each packet buffer;

iii) Determining whether the data packet contained in said examined packet buffer has been stored for at least one complete frame period;

30 iv) Discarding said [contained] data packet if said [contained] data packet has been stored for at least one complete frame period; and

v) Repeating steps (i) through (iv) for each packet buffer in the system.

9. A method as claimed in Claim 1 wherein said data stream is a non-time-relevant data stream.

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25. A method as in claim 1 wherein said signal distribution system utilizes wireless transmission.

26. An apparatus for transmission of a digital signal over an extended distance comprising:

5 a local expander comprising means for receiving a request for a data signal from a host controller which host controller is connected to said local expander;

means in said local expander for generating an outgoing transmission signal;

means in said local expander for sending said outgoing transmission signal, [which signals are] which outgoing transmission signal is sent over a signal distribution system;

10 a remote expander comprising means for receiving said outgoing transmission signal;

means in said remote expander for generating a digital signal from said outgoing transmission signal;

means in said remote expander for forwarding said digital signal to at least one peripheral device, which peripheral device is connected to said remote expander;

15 means in said remote expander for receiving inbound digital signals from said peripheral device[s];

means in said remote expander for converting said inbound digital signals to an inbound transmission signal;

20 means in said remote expander for sending said inbound transmission signal to said local expander, [which signals are] which inbound transmission signal is sent over said signal distribution system;

means in said local expander for receiving said inbound transmission signal;

means in said local expander for generating a digital signal from said inbound transmission; and

25 means in said remote expander for forwarding said digital signal to said host controller.

27. An apparatus as claimed in Claim 26 wherein said data signal is a time relevant data signal.

28. An apparatus as claimed in Claim 27 wherein said time relevant signal is a digital signal which conforms to the USB Specification; and said time relevant signal represent
30 isochronous data.

29. An apparatus as claimed in Claim 28 wherein said local expander additionally comprises:

means for storing said inbound signal as a stored inbound signal;

35 means for analysing said digital signal from said host controller to recognize a subsequent request for transmission of said time relevant digital signal; and

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means for sending said stored inbound signal to said host controller in response to said subsequent request.

30. An apparatus as claimed in Claim 26 wherein said digital signal is a non time-relevant signal which conforms to the USB Specification; and said non time-relevant signal represents asynchronous data.

31. An apparatus as claimed in Claim 30 for transmission of a digital signal over an extended distance comprising:

a) a local expander comprising means for receiving a request for a non time-relevant data signal from a host controller which host controller is connected to said local expander;

b) means in said local expander for generating an outgoing transmission signal;

c) means in said local expander for sending said outgoing transmission signal to a remote expander, [which signals are] which outgoing transmission signal is sent over a signal distribution system;

d) a remote expander comprising means for receiving said outgoing transmission signal;

e) means in said remote expander for generating a digital signal from said outgoing transmission signal;

f) means in said remote expander for forwarding said digital signal to at least one peripheral device, which peripheral device is connected to said remote expander;

g) means in said remote expander for receiving inbound digital signals from said peripheral device[s];

h) means in said remote expander for converting said inbound digital signals to an inbound transmission signal;

i) means in said remote expander for sending said inbound transmission signal to said local expander, [which signals are] which inbound transmission signal is sent over said signal distribution system;

j) means in said local expander for receiving said inbound transmission signal;

k) means in said local expander for generating a digital signal from said inbound transmission; and

l) means in said remote expander for forwarding said digital signal to said host controller.

32. An apparatus as claimed in Claim 31 wherein said local expander additionally comprises:

a) means for storing said inbound signal as a stored inbound signal;

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b) means for analysing said digital signal from said host controller to recognize a subsequent request for transmission of said non time-relevant digital signal; and

c) means for sending said stored inbound signal to said host controller in response to said subsequent request.

5 33. An apparatus as claimed in Claim 26 wherein said extended distance exceeds 5 meters.

 34. An apparatus as claimed in Claim 26 wherein said extended distance exceeds 30 meters.

10 35. An apparatus as claimed in Claim 26 wherein said extended distance is equal to or exceeds 100 meters.

 36. An apparatus as claimed in Claim 26 wherein said signal distribution system utilizes unshielded twisted pair (UTP) wiring.

 37. An apparatus as claimed in Claim 26 wherein said signal distribution system utilizes fibre optic cabling.

15 38. An apparatus as claimed in Claim 26 wherein said signal distribution system utilizes wireless transmission.

 39. An apparatus as claimed in Claim 26 wherein said host controller is a PC, and said peripheral device[s] is a camera, a mouse, a keyboard, a monitor or a speaker or speakers.

20 40. A method for transmitting a data stream between a host controller and a peripheral device over an extended distance; said method comprising:

- a. feeding a first original, outgoing digital signal from a host controller to a local expander unit;
- b. converting said outgoing digital signals into a converted outgoing signal having a format suitable for transmission over extended distances;
- 25 c. transmitting said outgoing digital signal, as a outgoing transmission signal, over a signal distribution system;
- d. receiving said outgoing transmission signal at a remote expander unit;
- e. converting said outgoing transmission signal to said first original outgoing digital signal;
- 30 f. delivering said first original outgoing digital signal from said remote expander to at least one peripheral device;

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